

**CURRICULUM VITAE
ROBERT BENJAMIN STEIN, M.D., PH.D.**

DATE OF BIRTH:	October 28, 1950
PLACE OF BIRTH:	Buffalo, New York
ADDRESS:	Ligand Pharmaceuticals Incorporated 9393 Towne Centre Drive, Suite 100 San Diego, CA 92121 (619) 535-3900
EDUCATION:	
1968-72	Indiana University, Bloomington, IN, B.S. with distinction, May 1972
1972-79	Duke University Medical and Graduate Schools, Durham, NC, 1972-1979 Ph.D. in Physiology & Pharmacology, December 1978 M.D., May 1979
BOARD CERTIFICATIONS:	
	Diplomate of the National Board of Medical Examiners (Certificate 161568)
	North Carolina Permanent Medical License 25834
	Pennsylvania permanent license MD-028019-E
	Board certified in anatomic and clinical pathology, December 1982
POSITIONS HELD:	
1993-present	Senior Vice President Chief Scientific Officer Ligand Pharmaceuticals Incorporated San Diego, CA 92121
1992-1993	Vice President, Research & Preclinical Development Ligand Pharmaceuticals Incorporated
1990-1992	Vice President, Research Ligand Pharmaceuticals Incorporated
1989-1990	Senior Director and Head Department of Pharmacology Merck, Sharp, and Dohme Research Laboratories West Point, PA 19486

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1987-1989	Associate Director Molecular and Cardiovascular Pharmacology Department of Pharmacology Merck, Sharp, and Dohme Research Laboratories
1982-1987	Senior Research Fellow Department of Virus and Cell Biology Research Merck, Sharp, and Dohme Research Laboratories
1979-1982	Resident, Department of Pathology Duke University Medical Center Durham, NC 27701

AWARDS AND HONORS:

1968-72	National Merit Scholar
1968-72	Indiana State Scholarship, (honorary)
1969	Phi Eta Sigma (freshman honorary)
1971	Phi Beta Kappa
1972	Bayard Floyd Microbiology Scholarship
1975	Alpha Omega Alpha (national medical honorary)
1974-1975	National Institutes of Health Training Grant
1976	Listed in <i>Who's Who Among College Students</i>
1976-1978	James B. Duke Scholar
1977-1979	Insurance Medical Scientist Scholarship
1978	Sigma Xi
1979	Lange Medical Publications Award

PROFESSIONAL MEMBERSHIPS:

American Society of Clinical Pathologists
American Association for the Advancement of Science
American Heart Association
New York Academy of Sciences

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ADDITIONAL PROFESSIONAL RESPONSIBILITIES, MSDRL:

Chairman, Cancer Technology Assessment Group
Chairman, Cardiovascular and Ion Channel Natural Products Screening Group
Co-chairman, Ion Channel Working Group
Member, Research Coordinating Committee
Member, Merck / DuPont Angiotensin II Receptor Antagonist Discovery Team
Member, Promotion Peer Review Committee
Member, Cardiovascular Technology Assessment Group
Member, Natural Products Task Force Steering Committee
Member, Molecular Biology Steering Committee
Member, Transgenic Animal Steering Committee
Member, Nuclear Imaging Technology Assessment Group
Member, Fibrinolysis Working Group
Member, Fibrinogen Receptor Antagonist Working Group

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ADDITIONAL PROFESSIONAL RE

PUBLICATIONS:

1. Borowitz, M.J., R.B. Stein, and J.J. Blum. 1977. Quantitative Analysis of the Change of Metabolite Fluxes Along the Pentose-Phosphate and Glycolytic Pathways in *Tetrahymena* in Response to Carbohydrates. *J. Biol. Chem.* 252: 1589-1605.
2. Stein, R.B. and J.J. Blum. 1978. On the Analysis of Futile Cycles in Metabolism. *J. Theoret. Biol.* 72: 487-522.
3. Stein, R.B. and J.J. Blum. 1979. Quantitative Analysis of Intermediary Metabolism in *Tetrahymena*: Cells Grown in Proteose-Peptide and Resuspended in Defined Nutrient-Rich Medium. *J. Biol. Chem.* 254: 10385-10395.
4. Stein, R.B. and J.J. Blum. 1980. Quantitative Analysis of Intermediary Metabolism in *Tetrahymena*: Cells Grown in Glucose-Supplemented Medium. *J. Biol. Chem.* 255: 4198-4205.
5. Stein, R.B. and J.J. Blum. 1981. Quantitative Analysis of Intermediary Metabolism in *Tetrahymena*: Cells Kept Under Static Conditions for 4 Hours After Growth in Glucose-Supplemented Medium. *J. Biol. Chem.* 256: 2752-2760.
6. Blum, J.J. and R.B. Stein. 1982. "On the Analysis of Metabolic Networks" in *Biological Regulation and Development*, Vol. 3A, pp.99-125, R. Goldberger, ed., Plenum Press, New York.
7. Stein, R.B. 1984. "Granulocytosis and Granulocytic Leukemoid Reactions" in *Laboratory Hematology*, pp. 153-188, J. Koepke, ed., Churchill Livingstone, Inc., New York.
8. Stein, R.B. and J.L. Linder. 1984. "Mononuclear Leukocytosis and Infectious Mononucleosis" in *Laboratory Hematology*, pp. 189-228, J. Koepke, ed., Churchill Livingstone, Inc., New York.
9. Giangaspero, F., P.C. Burger, D.R. Osborne, and R.B. Stein. 1984. Suprasellar Squamous Epithelioma: "Papillary Craniopharyngioma". *Am. J. Surg. Pathol.* 8(1): 57-64.
10. Borowitz, M.J. and R.B. Stein. 1984. Special Article: Diagnostic Applications of Monoclonal Antibodies to Human Cancer. *Arch. Pathol. & Lab. Med.* 108: 101-105.
11. Stein, R.B., P.S. Robinson, and E.M. Scolnick. 1984. Photo-affinity Labeling with GTP of Viral p21 *ras* Protein Expressed in *E. coli*. *J. Virol.* 50(2): 343-351.
12. Poe, M., E.M. Scolnick, and R.B. Stein. 1985. Viral Harvey *ras* p21 Expressed in *E. coli* Purifies as to a One-to-One Complex with GDP. *J. Biol. Chem.* 260(7): 3906-3909.
13. Hyland, J.L., C.M. Rogers, E.M. Scolnick, R.B. Stein, R. Ellis, and R. Beserga. 1985. Microinjected *ras* Family Oncogenes Stimulate DNA Synthesis in Quiescent Mammalian Cells. *Virology* 141(2): 333-336.

PUBLICATIONS (continued):

14. Storer, R.D., R.B. Stein, J.F. Sina, J.G. DeLuca, H.L. Allen, and M.O. Bradley. 1986. Malignant Transformation of a Preneoplastic Hamster Epidermal-Cell Line by the EJ c-Ha-ras Oncogene. *Canc. Res.* 46(3): 1458-1464.
15. Preiss, J., C. Loomis, R.B. Stein, J. Nidel, and R.M. Bell. 1986. Quantitative Measurement of s,n-1,2-Diacylglycerols Present in Platelets, Hepatocytes and ras and sis-transformed Normal Rat Kidney Cells. *J. Biol. Chem.* 261(19): 8597-8600.
16. Stein, R.B., J.Y. Tai, and E.M. Scolnick. 1986. Molecular Cloning of the Temperature Sensitive 371 Kirsten Murine Sarcoma Virus and Expression in *E. coli* of the Mutant and Wild Type Viral Kirsten ras p21 Proteins. *J. Virol.* 60(2): 782-786.
17. Linder, J., R.B. Stein, V. Roggli, R. Vollmer, B.P. Crocker, R. Postelwait, and J. Shelburne. 1987. Polypoid Tumor of the Esophagus. *Human Pathol.* 18(7): 692-700.
18. Riemen, M., R.J. Wegrzyn, A. Baker, W. Hurni, C. Bennett, A. Oliff, and R.B. Stein. 1987. Isolation of Multiple Components in Commercial Epidermal Growth Factor Preparations with Differing Biologic Properties. *Peptides* 8(5):877-885.
19. Wegrzyn, R.J., D. Defeo-Jones, D. Heimbrook, J. Wallen, D. Kiefer, R.B. Stein, M.W. Riemen, and A. Oliff. 1989. Spontaneously Transformed NRK Cells Lose Their Mitogenic Response to Epidermal Growth Factor. *Growth Factors* 1: 227-236.
20. McClements, W., G. Yamanaka, V. Garsky, V. Perry, S. Bachetti, R. Colonno and R.B. Stein. 1988. Oligopeptides Inhibit Herpes Simplex Virus Ribonucleotide Reductase by Inducing Subunit Dissociation. *Virology* 162:(1)270-273.
21. Clarke, C.F., K. Cheng, A.B. Frey, R.B. Stein, and A.J. Levine. 1988. Purification of Complexes of the Nuclear Oncogene p53 with Rat and *E. coli* Heat Shock Proteins: *In vitro* Dissociation of hsc70 and dnaK from Murine p53 by ATP. *Molecular and Cellular Biology* 8(3):1206-1215.
22. Clarke, C.F., K. Cheng, A.B. Frey, R.B. Stein, P.W. Hinds, C.A. Finlay and A.J. Levine. 1988. Purification and Properties of p53-Heat Shock Protein Complexes from *E. coli* and Transformed Rat Cells, Symposium and Memorial for George Khoury: Regulation of Viral Gene Expression.
23. Winkquist, R.J., L.A. Heaney, A.A. Wallace, E.P. Baskin, R.B. Stein, M.L. Garcia, and G.J. Kaczorowski. 1989. Glyburide Blocks the Relaxation Response to BRL 34915 (Cromakalim), Minoxidil Sulfate and Diazoxide in Vascular Smooth Muscle. *J. Pharmacol. Exper. Therapeut.* 248(1): 149-156.
24. Lynch, J.J., L.A. Heaney, A.A. Wallace, J.R. Gehret, H.G. Selnick, and R.B. Stein. 1990. Suppression of Lethal Ischemic Ventricular Arrhythmias By the Class III Agent E4031 in a Canine Model of Previous Myocardial Infarction. *J. Cardiovasc. Pharmacol.* 15(5):764-75.

PUBLICATIONS (continued):

25. Lynch, J.J. Jr., Heaney, L.A., Wallace, A.A., Gehret, J.R., and R.B. Stein. 1990. Failure of Lidocaine to Suppress Lethal Ischemic Ventricular Arrhythmias in a Canine Model of Previous Myocardial Infarction. *J. Cardiovasc. Pharmacol.* 16(1):41-9.
26. Swanson, R., Marshall, J., Smith, J.S., Williams, J.B., Boyle, M.B., Folander, K., Luneau, C.J., Antanavage, J., Oliva, C., Buhrow, S.A., R.B. Stein, and Kaczmarek, L. 1990. Cloning and expression of cDNA and genomic clones encoding three delayed rectifier potassium channels in rat brain. *Neuron* 4(6):929-39.
27. Folander, K., J.S.-Smith, J., Antanavage, C., Bennett, R.B. Stein, and R. Swanson. 1990. Cloning and Expression of the Delayed-Rectifier $I_{K\alpha}$ Channel From Neonatal Rat Heart and Diethylstilbestrol-Primed Rat Uterus. *Proc. Natl. Acad. Sci.* 87(8):2975-9.
28. Luneau, C.J., Williams, J.B., Marshall, J., Levitan, E.S., Oliva, C., Smith, J.S., Antanavage, J., Folander, K., Stein, R.B., Swanson, R., Kaczmarek, L.K., and Buhrow, S.A. 1991. Alternative Splicing contributes to K^+ Channel Diversity in the Mammalian Central Nervous System. *Proc. Natl. Acad. Sci.* 88(9):3932-6.
29. Bednar, D.L., Stein, R.B., Garsky, V.M., Williams D.L., Jr. 1991. The bovine endothelin receptor has an apparent molecular weight of 43,000. *Biochimica et Biophysica Acta.* 1092(2):226-32.
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31. Luneau, C.J., Williams, J.B., Marshall, J., Levitan, E.S., Oliva, C., Smith, J.S., Antanavage, J., Folander, K., Stein, R.B., Swanson, R., et al. Alternative Splicing Contributes to K^+ Channel Diversity in the Mammalian Central Nervous System. *Proc Natl Acad Sci USA*, May 1, 1991, 88(9) 3932-3936.
32. Heyman, R.A., Mangelsdorf, D.J., Dyck, J.A., Stein, R.B., Eichele, G., Evans, R.M., Thaller, C. 1992. 9-Cis Retinoic Acid Is a High Affinity Ligand for the Retinoid X Receptor. *Cell.* 68(2):397-406.
33. Berger, T.S., Parandoosh, Z., Perry, B.W., and R.B. Stein. 1992. Interaction of glucocorticoid analogues with the human glucocorticoid receptor. *J Steroid Biochem Mol Biol* 41(3-8):733-8.
34. R.B. Stein. 1992. Intracellular Receptors as Targets for Drug Discovery in "New Drugs from Natural Sources", J. Coombes(ed.) IBC Technical Services, Ltd., London, U.K., pp. 13-19.

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35. R.B. Stein. 1992. Intracellular Receptors, Bone Disease, and Drug Discovery in "Chemistry and Biology of Mineralized Tissues", H. Slavkin and P. Price (ed.) Elsevier Science Publishers B.V., pp. 507-513.
36. Dawson, M. I., Hobbs, P.D., R.B. Stein, Berger, T.S., Heyman, R.A. 1992. Interaction of Retinoids with Retinoic Acid Nuclear Receptor Isoforms. Retinoids - Progress in Research and Clinical Applications, M.A. Livrea and L. Packer (eds.), Marcel Dekker, Inc., New York, pp. 205-221.
37. Lynch, J.J., Jr., Wallace, A.A., Van der Gaag, L. H., Baskin, E.P., Bear, C.M., Gehret, J.R., Kothstein, T., Stupienski, R.F., Appleby, M.C., Jurkiewicz, Zingaro, G. J., R.B. Stein, et al.. 1992. Cardiac Electrophysiologic and Antiarrhythmic Actions of 3, 4-Dihydro-1' -[2-Benzofurazan-5-yl] Ethyl]-6-Methanesulfonamido-spiro [(2H)- 1 -Benzopyran-2, 4' -Piperidin]-4-one HCl (L-691, 121), a Novel Class III Agent. J. Pharmacol. Exper. Therapeut. 265(2):720-30.
38. Tzukerman, M.T., Esty, A., Santiso-Mere, D., Danielian, P., Parker, M.G., R.B. Stein, , Pike, W.J., McDonnell, D.P. 1994. Human Estrogen Receptor Transactivational Capacity is Determined by both Cellular and Promoter Context and Mediated by Two Functionally Distinct Intramolecular Regions. Molec. Endocrinol. 8:21-30.
39. Lamb, P., Kessler, L.V., Suto, C., Levy, D.E., Seidel, H.M., R.B. Stein, Rosen, J. 1994. Rapid Activation of Proteins that Interact with the Interferon Gamma Activation Site in Response to Multiple Cytokines. Blood. In Press.
40. Lamb, P., Haslam, J., Kessler, L., Seidel, H.M., R.B. Stein, Rosen, J.. 1994. Rapid Activation of DNA-binding Proteins in Intact Cells by Pervanadate. Submitted. (Journal of Biological Chemistry)
41. Pathirana, C., R.B. Stein, Berger, T.S., Fenical, W., Ianiro, T., Mais, D.E., Torres, A., Goldman, M.E. 1994. Nonsteroidal Human Progesterone Receptor Modulators from the Marine Alga *Cymopolia barbata*.

ABSTRACTS:

1. Borowitz, M.J., R.B. Stein, and J.J. Blum. 1975. Quantitative Analysis of Metabolite Fluxes along the Glycolytic and Pentose-Phosphate Pathways in *Tetrahymena*. The Physiologist 18: 147.
2. Stein, R.B. and B.P. Croker. Immunohistochemical Detection of Keratin in Thymomas. International Academy of Pathology Meeting, March 1982.
3. Stein, R.B., M. Lasecki, B.P. Croker, and W.W. Johnston, 1982. Immunological Detection of Keratin in Respiratory Cytologic Material. Acta Cytologica 26(5): 727.
4. Linder, J., R.B. Stein, V.L. Roggli, B.P. Croker, and J.D. Shelburne. 1983. Esophageal Pseudosarcoma and So-Called Carcinosarcoma: Evidence for Mesodermal Origin of the Spindle Cell Component. Lab. Invest. 48(1): 51.

5. Stein, R.B. Expression of Viral Harvey *ras* p21 in *E. coli* and Photoaffinity Labeling with GTP. Presented at Gordon Conference on Animal Cells and Viruses, August 1983.
 6. Gibbs, J., R. Ellis, I. Sigal, R.B. Stein, M. Poe, and E.M. Scolnick. Autophosphorylation of v-Ha-*ras* p21 is Modulated in Whole Cells and *in vitro* by Amino Acid Residue 12. Cold Spring Harbor RNA Tumor Viruses Meeting, May 1984.
 7. Slamon, D.J., R.B. Stein, T. Tanaka, E.M. Scolnick, and M.J. Cline. Generation of Antibodies to the Harvey *ras* Gene Product Using Synthetic Peptides. UCLA Symposium on "Genes and Cancer", February 1984.
 8. Poe, M., E.M. Scolnick, and R.B. Stein. 1985. HPLC Analysis of Guanine-Nucleotide Content of Purified Viral Harvey *ras* p21 Expressed in *E. coli*. Fed. Proc. 44(4): 1209.
 9. Storer, R.D., R.B. Stein, J.F. Sina, J.G. DeLuca, H.L. Allen, and M.O. Bradley. 1986. Malignant Transformation of a Preneoplastic Hamster Epidermal-Cell Line by the EJ c-Ha-*ras* Oncogene. J. Cell. Biochem. S10A: 27.
 10. Storer, R.D., J.F. Sina, R.B. Stein, and M.O. Bradley. 1986. Active Transforming Genes in Mouse Epidermal Keratinocyte Lines Established from DMBA/TPA-Induced Skin Tumors. AACR Meetings, 1986.
 11. Stein, R.B., J.Y. Tai, and E.M. Scolnick. Molecular Cloning of the Temperature Sensitive 371 Kirsten Murine Sarcoma Virus and Expression in *E. coli* of the Mutant and Wild Type Viral Kirsten *ras* p21 Proteins, Cold Spring Harbor RNA Tumor Virus Meeting. May 1986.
 12. McClements, W.M., G. Yamanaka, V. Garsky, H. Perry, S. Bacchetti, R. Colonno, and R.B. Stein. Oligopeptides Inhibit Herpes Simplex Virus Ribonucleotide Reductase by Inducing Subunit Dissociation. 12th International Herpesvirus Meeting. 1987.
- ABSTRACTS (continued)**

13. Lynch, J.J., L.A. Heaney, A.A. Wallace, and R.B. Stein. Suppression of Lethal Ischemic Ventricular Arrhythmias by the Class III Agent E4031 in a Canine Model of Previous Myocardial Infarction. International Society for Heart Research, American Section, Ann Arbor, MI, May 14-18, 1989.
14. Swanson, R., J. Antanavage, R.B. Stein, M. Tanouye, and J.S. Smith. Chimeric Shaker cDNA transcripts induce the expression of kinetically distinct K⁺ currents in *Xenopus*. Biophysical Society Meeting, Cincinnati, OH, February 12-16, 1989.
15. Lynch, J.J., L.A. Heaney, A.A. Wallace, J.R. Gehret, J.R., and R. B. Stein. Failure of Lidocaine to Prevent Lethal Ischemic Ventricular Arrhythmias in a Canine Model of Previous Myocardial Infarction. American Heart Association, New Orleans, LA, November 13-16, 1989.

16. Folander, K., J.S. Smith, J. Antanavage, C. Bennett, J. Williams, L. Kaczmarek, L., **R.B. Stein**, and J. Smith. Cloning and Expression of Delayed Rectifier K⁺ Channels from Neonatal Rat Heart and DES primed Rat Uterus. American Heart Association, New Orleans, LA, November 13-16, 1989.
17. Swanson, R., K. Folander, J. Antanavage, C. Bennett, J. Williams, L. Kaczmarek, L., **R.B. Stein**, and J. Smith. Cloning and Expression of K⁺ Channels from Rat Brain. American Heart Association, New Orleans, LA, November 13-16, 1989.
18. Lynch, J.J., R.T. Wiedmann, E.P. Baskin, L.A. Heaney, **R.B. Stein**, and H.P. B., Cingolani, Contractile Behavior of the Novel Class III Antiarrhythmic Agent. American Heart Association, New Orleans, LA, November 13-16, 1989.
19. Luneau C.J., J.B. Williams, and **R.B. Stein**. Age - and Tissue-Related Expression of Potassium Ion Channel mRNA Levels in the Rat. American Heart Association, New Orleans, LA, November 13-16, 1989.
20. Buhrow, S., R. Swanson, K. Folander, C. Luneau, J. Antanavage, C. Bennett, J. Williams, L. Kaczmarek, **R.B. Stein**, and J. Smith. Cloning and Characterization of Delayed Rectifier K⁺ Channels from Rat Brain. Nucleic Acid Technologies Meeting, Albany, NY, September 21-24, 1989.
21. Swanson, R., K. Folander, J. Antanavage, C. Bennett, J. Williams, L. Kaczmarek, **R.B. Stein**, and J. Smith. Cloning and Expression of K⁺ Channels from Rat Brain. Society for Neurosciences Annual Meeting, Phoenix, AZ, October 29 - November 3, 1989.
22. Folander, K., J. Smith, J. Antanavage, C. Bennett, **R.B. Stein**, and R. Swanson. Cloning and Expression of K⁺ Channels from Neonatal Rat Heart and DES-Primed Rat Uterus. Society for Neurosciences Annual Meeting, Phoenix, AZ, October 29- November 3, 1989.
23. Bednar, D.L., **R.B. Stein**, V.M. Garsky, and D.L. Williams. Apparent Molecular Weight of the Endothelin Receptor, 34th Annual Meeting of the Biophysical Society, February 18-22, 1990.

ABSTRACTS (continued):

24. Swanson, R., K. Folander, C. Bennett, C., J. Antanavage, J., **R.B. Stein**, and J. Smith. Total Synthesis, Expression, and Functional Assay of a Gene Encoding a Human Delayed Rectifier potassium Channel, 34th Annual Meeting of the Biophysical Society, February 18-22, 1990.
25. Williams, J., C. Luneau, R. Swanson, K. Folander, C. Bennett, J. Antanavage, L. Kaczmarek, **R.B. Stein**, and J.S. Smith. Cloning and Expression of a Genomic DNA Clone Encoding a Rat Brain Potassium Channel. 34th Annual Meeting of the Biophysical Society, Baltimore, MD, February 18-22, 1990.
26. Smith, J.S., **R.B. Stein**, and R. Swanson. Kinetics of cloned K⁺ currents change with level of expression in *Xenopus* oocytes. 34th Annual Meeting of the Biophysical Society, Baltimore, MD, February 18-22, 1990.

27. Baskin, E., C. Serik, A. Wallace, L. Brookes, D. Claremon, H. Selnick, **R.B. Stein** and J. Lynch. Comparative effects of Class III antiarrhythmic agents on refractoriness in isolated ventricular myocardium. Federation of American Societies for Experimental Biology Annual Meeting, Washington, DC, April 2-5, 1990.
28. Stupenski, R., A. Wallace, L. Brookes, D. Claremon, H. Selnick, **R.B. Stein**, and J. Lynch. Cardiac electrophysiologic and hemodynamic effects of Class III antiarrhythmic agents in anesthetized dogs. Federation of American Societies for Experimental Biology Annual Meeting, Washington, DC April 2-5, 1990.
29. Serik, C., E. Baskin, R. Wiedmann, L. Brookes, D. Claremon, H. Selnick, **R.B. Stein**, and J. Lynch. Inotropic effects of Class III antiarrhythmic agents in isolated ventricular myocardium. Federation of American Societies for Experimental Biology Annual Meeting, Washington, DC, April 2-5, 1990.
30. Wallace, A., J. Gehret, L. Heaney, R. Stupenski, **R.B. Stein**, and J. Lynch. Failure of lidocaine to prevent lethal ischemic ventricular arrhythmias in a canine model of previous myocardial infarction. Federation of American Societies for Experimental Biology Annual Meeting, Washington, DC, April 2-5, 1990.
31. Folander, K., J. Smith, **R.B. Stein**, and R. Swanson. Cloning of K⁺ Channels Underlying the Cardiac I_K Current. International Soc. for Heart Research, Chicago, IL, May 8-11, 1990.
32. Williams, J., C. Luneau, R. Swanson, K. Folander, J. Antanavage, C. Bennett, L. Kaczmarek, **R.B. Stein**, and J.S. Smith. Cloning and Expression of a Genomic DNA Clone Encoding a Rat Brain Potassium Channel. Biophysical Society Meetings, Washington, DC, February 1990.

ABSTRACTS (continued):

33. Total Synthesis, Expression, and Functional Assay of a Gene Encoding a Human Delayed Rectifier Potassium Channel. Biophysical Society Meeting, Washington, DC, February 1990.
34. Folander, K., Lin, C.S., Smith, J.S., Swanson, R., and **R.B. Stein**. Cloning of Potassium Channel Complementary DNA from Rat Leukocytes and Human T Cells. Society for Neurosciences Annual Meeting, St. Louis, MO, October 28-November 2, 1990.
35. Luneau, C.J., Buhrow, S.A., Marshall, J., Antanavage, J., Levitan, E., Smith, J., Swanson, R., Folander, K., Bennett, C., **R.B. Stein**, et al. Cloning and Expression of K-V4 A Rat Brain Delayed Rectifier Potassium Ion Channel Complementary DNA. Society for Neurosciences Annual Meeting, St. Louis, MO, October 28-November 2, 1990.
36. Elliott, J.M., Baldwin, J.J., Buhrow, S. A., Claremon, D.A., Lynch, J.J., Ponticello, G.S., Radzilowski, E.M., Remy, D.C., Selnick, H.G., **R.B. Stein**, et al. Benzopyranone Spiropiperidines as

September 16, 1993

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Curriculum Vitae

Novel Potent and Selective Class III Antiarrhythmic Agents Development of L-691121. Fourth Chemical Congress of North America Meeting, New York, N.Y. August 25-30, 1991.

37. McDonnell, Donald P., Dana, Sharon L., Hoener, Patricia A., Lieberman, Benjamin A., Imhof, Markus O., and R.B. Stein. Cellular Mechanisms Which Distinguish between Hormone- and Antihormone- Activated Estrogen Receptor. New York Academy of Sciences conference, *Steroid Receptors and Antihormones*, Dallas, Texas, September 20-23, 1994.

PATENTS:

1. United States Patent 4,814,432, Inhibitor of Ribonucleotide Reductase, Inventors: Roger Friedinger, John Hannah, Victor M. Garsky, **Robert B. Stein**, Richard L. Tolman, March 21, 1989.
2. United States Patent 4,837,304 Inhibitor of Ribonucleotide Reductase, Inventors: Victor M. Garsky, **Robert B. Stein**, Richard L. Tolman, July 4, 1989.
3. International Application Number PCT/US92/07064, Use of Selective Ligands for Treatment of Hormone Responsive Disease States, Ronald M. Evans, Richard A. Heyman, Christina S. Berger, and **Robert B. Stein**, August 21, 1992.
4. United States Patent Application Serial Number 07/872,710, Non-Steroid Progesterone Receptor Agonist and Antagonist Compounds and Methods, Inventors: T. S. Berger, W. Fenical, C. Pathirana, and **Robert B. Stein**. September 8, 1992.
5. United States Patent Application Serial Number 08/048,646, Non-Steroid Progesterone Receptor Agonist and Antagonist Compounds and Methods, Inventors: T. S. Berger, W. Fenical, C. Pathirana, **Robert B. Stein**, T. Jones, L. Hamann, and L. Farmer, April 16, 1993.